CLAIMS

What is claimed is:

1. A multi-layered electrophotographic positively charged organic photoconductor comprising:

a conductive substrate;

a charge transport layer on the conductive substrate; and

a charge generating layer on the charge transport layer,

in which a first composition to form the charge transport layer comprises:

at least one hole transport material;

a binder resin; and

an organic solvent, and

a second composition to form the charge generating layer comprises:

a charge generating material;

a binder resin;

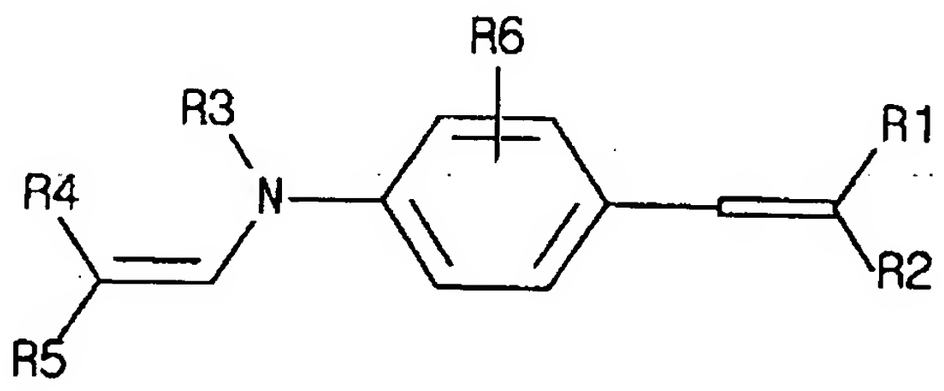
an organic solvent; and

a hole transport material.

2. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the organic photoconductor further comprises an overcoat layer on the charge generating layer.

3. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the hole transport material in the composition to form the charge transport layer comprises a stilbene compound having a structure of the following formula (I):

(I)



in which, R1 and R2 are independently selected from the group consisting of a hydrogen atom, an alkyl group, an aryl group, and a styryl group, provided that at least one of R1 and R2 is selected from an aryl group and styryl group;

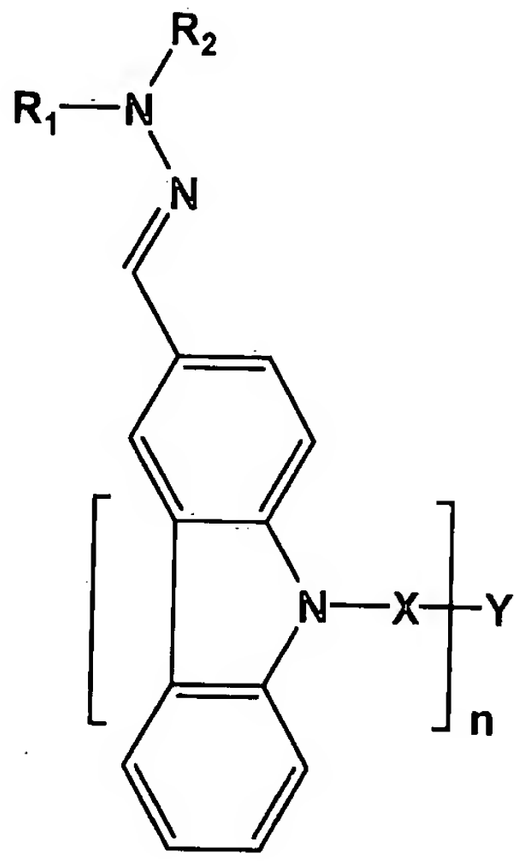
R3 is selected from the group consisting of a substituted or unsubstituted alkyl group, an aralkyl group and an aryl group;

R4 and R5 independently selected from the group consisting of a hydrogen atom and an alkyl group; and

R6 is selected from the group consisting of a hydrogen atom, a halogen atom, an alkyl group and an alkoxy group.

4. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the hole transport material in the composition to form the charge transport layer comprises a hydrazone compound having a structure of the following formula (II):

(II)



in which, n is an integer from 2 to 6;

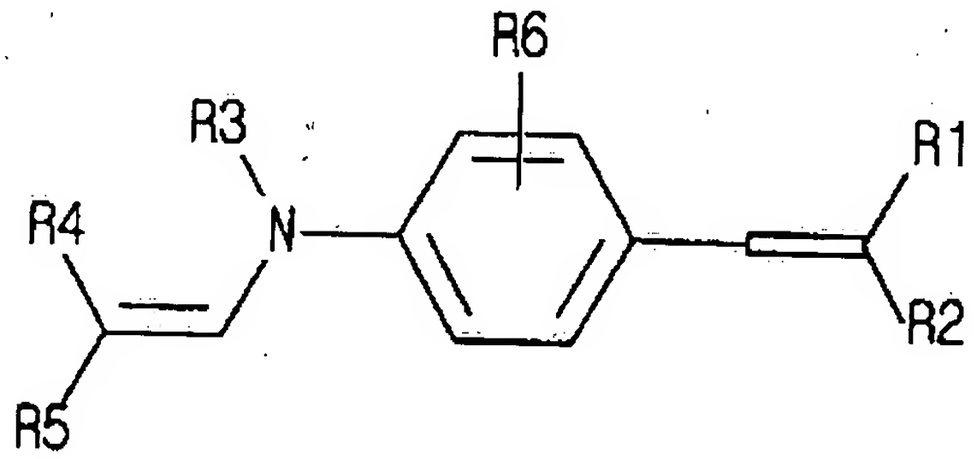
R_1 and R_2 are independently selected from among an alkyl group, a cycloalkyl group, and an aryl group and optionally combined with the nitrogen atom to form a ring;

Y is selected from among a bond, a carbon atom, a $-CR_3$ group where R_3 is a hydrogen atom or an alkyl group or an aryl group, an aryl group, a cycloalkyl group, and a cyclosiloxyl group; and

X is a linking group of the formula of $-(CH_2)_m-$ where m is an integer from 4 to 10 and at least one methylene group is optionally substituted with an oxygen atom, a carbonyl group, or an ester group.

5. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the hole transport material in the composition to form the charge transport layer comprises a mixture of a stilbene compound of the formula (I)

(I)



in which, R1 and R2 are independently selected from the group consisting of a hydrogen atom, an alkyl group, an aryl group, and a styryl group, provided that at least one of R1 and R2 is selected from an aryl group and styryl group;

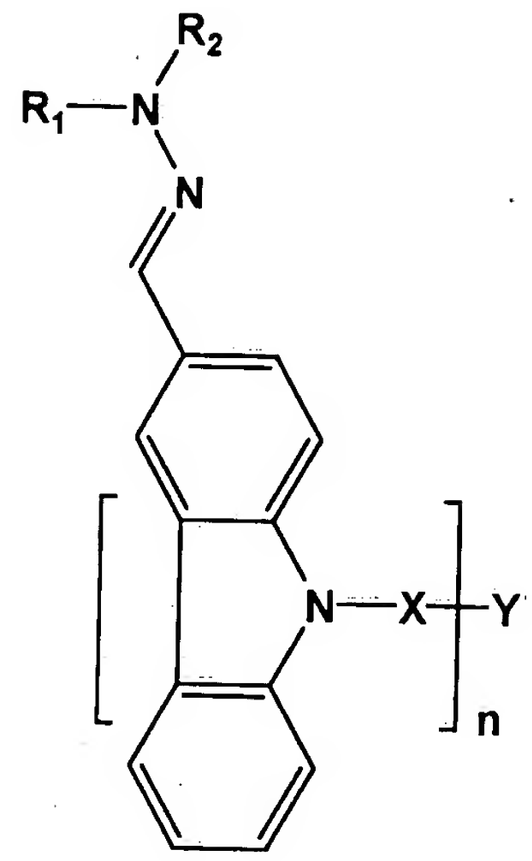
R3 is selected from the group consisting of a substituted or unsubstituted alkyl group, an aralkyl group and an aryl group;

R4 and R5 are independently selected from the group consisting of a hydrogen atom and an alkyl group; and

R6 is selected from the group consisting of a hydrogen atom, a halogen atom, an alkyl group and an alkoxy group; and

a hydrazone compound of the formula (II) :

(II)



in which, n is an integer from 2 to 6;

R_1 and R_2 are independently selected from among an alkyl group, a cycloalkyl group, and an aryl group and optionally combined with the nitrogen atom to form a ring;

Y is selected from among a bond, a carbon atom, a $-CR_3$ group where R_3 is a hydrogen atom or an alkyl group or an aryl group, an aryl group, a cycloalkyl group, and a cyclosiloxyl group; and

X is a linking group of the formula of $-(CH_2)_m-$ where m is an integer from 4 to 10 and at least one methylene group is optionally substituted with an oxygen atom, a carbonyl group, or an ester group.

6. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the binder resin in the composition to form the charge transport layer is polycarbonate and the organic solvent in the composition to form the charge transport layer is tetrahydrofuran.

7. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the organic solvent in the composition to form the charge generating layer is a solvent mixture of an alcohol solvent and an acetate solvent.

8. The multi-layered electrophotographic positively charged organic photoconductor according to claim 7, wherein the solvent mixture comprises the acetate solvent in an amount of 10 % by weight to 50 % by weight based on a total weight of the solvent mixture.

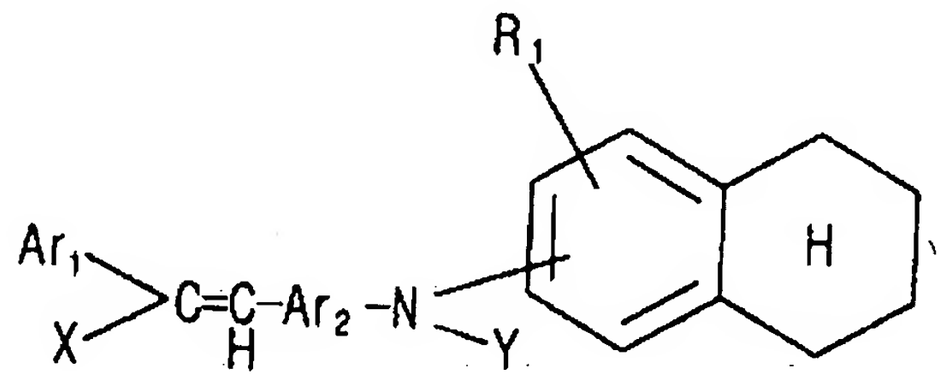
9. The multi-layered electrophotographic positively charged organic photoconductor according to claim 7, wherein the alcohol solvent is one selected from the group consisting of ethanol, isopropylalcohol, n-butanol, methanol, 1-methoxy-2-propanol, diacetonealcohol, isobutylalcohol and t-butylalcohol and the acetate solvent is any one selected from the group consisting of butylacetate, ethylacetate, isopropylacetate, isobutylacetate and sec-butylacetate.

10. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the hole transport material in the composition to form the charge generating layer is in a range of 5 % by weight to 30% by weight based on a total weight of the composition to form the charge generating layer.

11.The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the hole transport material in the composition to form the charge generating layer is a substance that is soluble in an amount of at least 1% (w/w) relative to the organic solvent.

12. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the hole transport material in the composition to form the charge generating layer is an amine compound having a structure of the following formula (III):

(III)



in which, Ar_1 is a substituted or unsubstituted aryl group;

Ar_2 is selected from the group consisting of a substituted or unsubstituted phenylene group, a substituted or unsubstituted naphthylene group, a substituted or unsubstituted biphenylene group, and a substituted or unsubstituted anthrylene group;

R_1 is selected from the group consisting of a hydrogen atom, a low alkyl group and a low alkoxy group;

X is selected from the group consisting of a hydrogen atom, a substituted or unsubstituted alkyl group and a substituted or unsubstituted aryl group; and

Y is a substituted or unsubstituted aryl group.

13. The multi-layered electrophotographic positively charged organic photoconductor according to claim 1, wherein the charge generating material in the composition to form the charge generating layer is titanyloxy phthalocyanine and the binder resin in the composition to form the charge generating layer is polyvinylbutyral.

14. A method to produce a multi-layered electrophotographic positively charged organic photoconductor comprising :

dissolving at least one hole transport material and a binder resin in an organic solvent, followed by filtering to prepare a composition to form a charge transport layer;

mixing a binder resin and a charge generating material in an alcoholic solvent, followed by milling to form a dispersion, separately dissolving a hole transport material in an acetate solvent to form a solution and mixing the alcoholic dispersion and the acetate solution with an alcoholic solvent to prepare a composition to form a charge generating layer;

coating the composition to form the charge transport layer on a conductive substrate, followed by drying the charge transport layer; and

coating the composition to form the charge generating layer on the charge transport layer, followed by drying the charge generating layer.

15. The method according to claim 14, which further comprises coating a composition to form an overcoat layer comprising one selected from the group consisting of polyaminoether, polyurethane and silsesquioxane on the charge generating layer, followed by drying the overcoat layer.

16. The method according to claim 14, wherein the coating is performed by one of ring coating and dip coating.

17. The method according to claim 15, wherein the coating is performed by one of ring coating and dip coating.